



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/320,643	05/27/1999	MARCO PIVA	Q-54188	5053

7590

05/27/2003

SUGHRUE MION ZINN MACPEAK & SEAS PLLC
2100 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 200373213

EXAMINER

LEE, DIANE I

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/320,643

Applicant(s)

PIVA ET AL.

Examiner

D. I. Lee

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-70 and 79-84 is/are pending in the application.
- 4a) Of the above claim(s) 38-41, 51 and 68-70 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 79-86 is/are allowed.
- 6) ☒ Claim(s) 36, 37, 42-50 and 52-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Receipt is acknowledged of the Amendment filed 05 March 2003. Claims 36-37 have been amended; claims 71-78 have been canceled; and claims 79-84 have been newly added. Currently, claims 36-70 and 79-86 are pending in this application, and wherein claims 38-41, 51, 68-70 were withdrawn from further consideration for they are drawn to a non-elected claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 36, 37, 42-46, 48-50, 52-55, and 62-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilt et al. [US 5,737,122-referred as Wilt] in view of Roustaei [US 5,532,467].

Re claims 36, 37, and 45-46: Wilt discloses an illumination system 74 for an optical code reading apparatus (see the abstract and col. 1, lines 54+), comprising:

a casing 112 (see figures 4-7);

a reading window open into the casing (see figure 5);

Art Unit: 2876

an illuminating means 118, 120 housed within the casing and arranged to act on an optical code to be read through the reading window (see figure 5);

a detection means 76 responsive to light scatter from the light illuminated optical code into the casing through the reading window (see figures 4-9);

an objective lens 78, 104 having an optical axis, the objective lens being housed within the casing between the reading window and the detection means and being located to pick up light scattered from the illuminated optical code 110. Wherein the detection means comprises a plurality of light-sensitive elements capable of converting the light to electric signals representing the light image, e.g., 6.6 x 8.8 mm charge coupled device (CCD sensor) (see col. 6, lines 24+ and figures 4-6);

wherein the illumination means comprises a first array of light sources 118 for illuminating an optical code placed within the optical path and at least second array of light sources 120, which different from the first one, for illuminating an optical code placed within a second optical path; said light sources of the first and second array of light sources being selectively activated (i.e., capable of activating the light source of one group while other group is not activated) in order to provide a first illumination configuration and a second illumination configuration that is different from the first configuration (see col. 7, lines 52+ and figures 5-7). Each illumination configuration corresponds to the specific selection of the source and intensity selected by the operator for illuminating an optical code having a variety of viewing conditions (see col. 7, lines 45+).

Although Wilt teaches that different group of light sources each having different illumination configuration of illuminating an optical code (i.e., the first group of light having a first illuminating configuration of illuminating the optical code and the second group of light having a second illuminating configuration of illuminating the optical code); Wilt does not teach the first and the second illuminating configurations are for illuminating an optical code placed within a first distance range and a second distance range that differs from the first distance range, respectively.

Roustaei discloses an optic scanning head for reading bar code symbols at variable distance from the symbol which uses LED light sources and CCD detector (see col. 1, lines 52+; col. 2, lines 24+). The scanning head includes a plurality pair illumination being oriented to emit light at different angles and by regulating/modulating the voltage to the LEDs, the intensity of light is adjusted for codes that are places at a short distance (i.e., a first distance) and a greater distance (i.e., a second distance different from the first distance). Therefore, providing a full power to the LEDs for the maximum scanning distance and decrease the intensity of light from LEDs by lowering the power to the LEDs for a short scanning distance (see col. 6, lines 5+).

In view of Roustaei's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the scanning head with modulating voltage supply to modulate the intensity of the LEDs in order to provide various illuminating configurations (i.e., various intensity) in order to read the code at variable distance with minimum power consumption.

Re claim 42: Wilt teaches the first array of light sources comprises a plurality of light source pairs and with combined figures 5-6, Wilt shows that each pair in turn comprising responsive light sources symmetrically arranged with respective light sources symmetrically arranged with respect to the optical axis of the objective lens and aligned along a substantially perpendicular direction to the optical axis. The light sources lying in a first emission lay intersecting the optical axis and the light sensitive elements of the detection means.

Re claims 48 and 50: from figures 4-5, Wilt shows that the light system having baffles (94, 96, 132, 134), the housing of the LED, mirrors, and a window combined together as a means to prevent the dispersion of the light beam thereby confining the light beam from the first array of light sources within a predetermined reading area. The casing/housing of the LED being a holder element for the plurality of light source pairs which formed with a respective seat for the light sources and seats having respective sidewalls shaped to confine the light beam from each source within the predetermined reading area.

Re claims 52 and 62: Wilt teaches that the first array of light source for reading soft mark and the second array of light source which is a broad spectrum incandescent lamps for reading hard marks thereby the plurality of second light sources have a lower light intensity than the sources in the first array of light sources (see col. 6, lines 46+).

Re claims 53-54: Wilt shows the second light sources are housed within the casing symmetrically with respect to the optical axis of the objective lens (see figure 6) so as to be aligned to one another in a second emission layer which is different from the first one. Wherein the second light sources are housed within the casing centrally with respect to the first array of light sources and wherein the second emission layer is lower than the first emission layer, i.e., with respect to the lower portion of the light illumination as shown in figure 6.

Re claim 49: Although Wilt teaches the light source is provided with a mask 54, 84 for confining the light beam having the first array of light sources having a rectangular shaped masking element associated with the casing at the location of the reading window, he does not teach the mask having a ring shaped.

However it would have been obvious design variation to an artisan of ordinary skill in the art at the time the invention was made to utilize the different shape of mask (e.g., rectangular, circular or ring) in the reading device of Wilt in order to accommodate the types of code/image being read and its illumination requirement and thereby obtain best reading results. Furthermore, due to the fact that the variety shape of masks are readily available, choosing the best shape mask in the reader to accommodate the type of optic device, the reading window, visibility of reading substrate, and the sensitivity of the optic sensor would have been an obvious expedient.

Re claims 55 and 63: Although Wilt teaches the first array of light sources having a two pairs discrete plastics LEDs and the first and second array of light sources each having different intensity, he does not teach the specifics of the second array of light sources having four SMD plastics LEDs.

Art Unit: 2876

However it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to modify type of the light source by utilizing different type of light source in the reader of Wilt in order to accommodate illumination requirements with given optic components therein. Therefore, implementing four SMD plastics LEDs or any other types in the second array of light sources would have been an obvious extension taught by Wilt and would have been an obvious design variation. Accordingly, it would have been an obvious expedient.

Re claims 43-44: Wilt does not disclose the light source includes a pair of outward sources and inward sources each disposed in an offset position from the optical axis with a specific angle, and , respectively such that the angle is smaller than angle .

Roustaei discloses an optic scanning head having plurality pair illumination being oriented to emit light at different angles such that the outward pair of light sources having an offset position from the optic axis with an outward angle (the optic axis defined by optic module 17) and the inward pair of light sources having an offset position from the optic axis with an inward angle thereby the outward angle is smaller than the inward angle (see figure 1).

In view of Roustaei's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the LED arrangement configuration (i.e., each pair of light emitting at different angles) in the teaching of Wilt in order to create an illumination having a fan of light which illuminating the light symmetrically for better reading results.

5. Claims 47, 56-61, 64-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilt as modified by Roustaei as applied to claim 36 above, and further in view of Wang et al. [US 5,521,366]. The teachings of Wilt as modified by Roustaei have been discussed above.

Re claim 47: Although Wilt teaches the CCD sensor as a detection means therein, Wilt as modified by Roustaei is silent with respect to the specifics of the detection means being a CMOS sensor.

Wang discloses a dataform reader having a casing, an illuminating means 50, 52, a two dimensional array of sensor cells 20 as a detection means, and objective lens 56. Wang discloses the arrangement of the two dimensional array sensor cells which associated with a gain control, focus sensing and exposure control circuitry all integrated into a single chip such as CMOS chip to provide a lower power requirement in the reader (see the abstract and col. 5, lines 38+).

In view of Wang's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the CMOS technology (i.e., incorporating the two dimensional array sensor cells which with a gain control, focus sensing and exposure control circuitry implemented on a single chip) in the optical code reading device of Wilt as modified by Roustaei in order to provide a lower power consumption in the optical reading device and for the advantage of light weight, cost advantages, and establishing the production techniques (i.e., in a single chip size).

Re claims 56-61, 64-67: Although Wilt teaches the illumination system for an optical code reading, i.e., for Optical Character Recognition (OCR) of indicia on a substrate which obviously includes a decoding means and wherein the CCD sensor detects the light intensity of the light scattered from the optical code, Wilt as modified by Roustaei is silent with respect to the process of comparing the outline of the intensity with a reference outlined to activate the light source according to the result of the decoding attempt including the distance measured.

Wang discloses the CPU 88 as a means for decoding the optical code (see col. 9, lines 62+ and figures 5-6). The result of decoding attempts (i.e., upon a successful/unsuccessful decoding operation, adjusting the reading distance between the reader and the target), the exposure illumination is turned on. From figures 2 and 5, Wang shows the decoding means coupled to an exposure control device (64, 64a) and a gain control device (60, 60a) to provide start and stop signals usable for beginning and terminating as exposure period. Therefore, the exposure control device monitors the sample image data and when the sample image data indicates that the level of reflected light from the target area has reached a

Art Unit: 2876

predetermined level, the exposure control device generates a stop signal. Wang further shows the decoding means is also coupled to gain control device (60, 60a) and the focus device (62, 62a) to select an appropriate amplitude gain and offset signal to apply to the sensor array amplifier in the sensor which obviously includes the means for comparing the intensity with a reference intensity and the means to varying the amplification level of the electric signals generated by the detection means. Col.8, lines 59+ and figure 6 illustrate the specifics of operation process.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the decoding means, gain control device, focus device, and the process of comparing the intensity with a reference intensity to vary the intensity in the system of Wilt as modified by Roustaei in order to increase the imaging accuracy and provide a reliable optical code apparatus.

Allowable Subject Matter

6. Claims 79-86 are allowed.

7. The following is an examiner's statement of reasons for allowance: the best prior art of record, Wilt as modified by Roustaei and Wang does not teach or fairly suggest optical code reader having a device for widening the angle of the emitting beam along the direction of alignment of the first array of light sources and narrowing the angle of the emitting beam along the perpendicular direction to the first emission lay, and a converting device having a main digitalizer and an auxiliary digitalizer and wherein the sensitivity of the auxiliary digitalizer is higher than the main digitalizer which is used to provide the specifics of the setting/switching mode having different configuration mode, as set forth in the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

8. Applicant's arguments filed 05 March 2003 have been fully considered but they are not persuasive.

9. First, in response to applicant's remark with respect to claims 71 and 72 as presented in the amendment of 4/4/01 were not considered by the examiner (see page 20, lines 14+); the examiner has considered claims 71-72 and indicated allowable in the last Office Action (see paper no. 19).

10. Applicant stated that the teachings of selecting the different light sources are taught by Wilt and different modulation of the intensity of light of the light sources are taught by Roustaei, and Applicant further indicated that in the applicant's invention, just a selection or activation of different groups of light sources in order to read codes placed at different distance without the modulation of the intensity of the light sources (see page 20, lines 18+). It is noted by the examiner that Wilt reference is cited in the rejection for the teachings of selecting the different light sources. And Roustaei reference was brought in the rejection for the limitation not taught by Wilt (i.e., the first and the second illuminating configurations are for illuminating an optical code placed within a first distance range and a second distance range that differs from the first distance range, respectively). Although Wilt teaches that different group of light sources each having different illumination configuration of illuminating an optical code (i.e., the first group of light having a first illuminating configuration of illuminating the optical code and the second group of light having a second illuminating configuration of illuminating the optical code); Wilt does not teach the first and the second illuminating configurations are for illuminating an optical code placed within a first distance range and a second distance range that differs from the first distance range, respectively.

Roustaei discloses an optic scanning head for reading bar code symbols at variable distance from the symbol which uses LED light sources and CCD detector (see col. 1, lines 52+; col. 2, lines 24+). The scanning head includes a plurality pair illumination being oriented to emit light at different angles and by

Art Unit: 2876

regulating/modulating the voltage to the LEDs, the intensity of light is adjusted for codes that are placed at a short distance (i.e., a first distance) and a greater distance (i.e., a second distance different from the first distance). Thus, Roustaei use the method of providing the LEDs for the maximum scanning distance and decrease the intensity of light from LEDs for a short scanning distance, although Roustaei's method may differ from the applicant. Therefore, Roustaei clearly teaches the limitation not taught by Wilt.

11. It is noted that the features upon which applicant relies (the specific claimed method of varying the distances using two different light sources, especially the first and the second illuminating groups are for illuminating an optical code placed within a first distance range and a second distance range **without varying the modulation of the intensity of light of the light sources**) are not recited in the rejected claim(s). Thus, Wilt as modified by Roustaei obviously teaches the claimed invention of the first and the second illuminating configurations are for illuminating an optical code placed within a first distance range and a second distance range that differs from the first distance range, respectively. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


Art Unit: 2876

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. I. Lee whose telephone number is 703-306-3427. The examiner can normally be reached on Monday through Thursday from 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


D. I. Lee
Primary Examiner
Art Unit 2876

D. L.
May 15, 2003